

Appln. No.: 10/074,792
Amendment Dated September 25, 2003
Reply to Office Action of July 25, 2003

MAT-6660US2

Remarks/Arguments:

By this Amendment, Applicants have amended claims 13 and 14. Claims 13-28 are pending.

The Office Action Summary indicates that claims 1-12 are pending in the application and claims 13-28 are rejected. Applicants respectfully submit that this is apparently a typographical error. Applicants canceled claims 1-12 in a Preliminary Amendment dated February 12, 2002. Applicants note that the remainder of the Office Action correctly recognizes the claims 13-28 are currently pending.

Claims 13-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent No. JP 7-169635 to Hayama et al. (herein Hayama) and further in view of U.S. Patent No. 5,162,240 to Saitou et al. (herein Saitou). Based on this Amendment, Applicants respectfully traverse this rejection.

Claims 13 and 14 are independent claims. Claims 15-21 are dependent on claim 13, and claims 22-28 are dependent on claim 14. Turning first to claim 13, as amended is directed to a multilayer ceramic substrate including the following elements:

- a ceramic substrate;
- a first conductive pattern having a **convex via having a step and thereby having only two different widths**, and being formed on said ceramic substrate by a transfer printing technology through an intaglio printing using a flexible resin substance;
- an insulation layer formed on the first conductive pattern; and
- a second conductive pattern electrically connected by way of said via.

Applicants submit that the multilayer ceramic substrate defined by amended claim 13 is patentably distinguished from Hayama at least based on the requirement that the **convex via has a step and thereby has only two different widths**. The convex via having a step and thereby having only two different widths, is readily discerned in Figure 1 of the application where the via is identified by numeral 11. It is Applicants' contention that a via having a step and thereby having only two different widths is not taught or suggested by Hayama.

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In addition, Hayama does not appreciate or even consider the advantage resulting from the convex via having a step and thereby having only two different widths defined in Applicants' amended claim 13. The step in the convex via having only two different widths enables quick and easy formation of a via having a wide portion for connection with a conductive material of a ceramic substrate and a narrow portion for producing a fine wire pattern having a high wire density. By limiting the convex via to only two different widths, the claimed via can be formed by varying the horizontal effects of a laser only once during the formation of the via. This advantage, which is a result of Applicants' convex via having a step and thereby having only two different widths, is not found in Hayama.

Hayama in general relates to electronic parts manufactured by intaglio printing. The Office Action focuses on Hayama relative to the intaglio printing process of Figure 8, and the Hybrid IC substrates shown in Figures 10-13. More specifically, Hayama discloses an electrode 35 in Figures 11 and 12. But this electrode 35 has a **circular truncated cone shape**, and therefore does not have the **step having only two different widths** as required of the convex via defined in Applicants' amended claim 13. In the Office Action, the Examiner points out that Hayama discloses that the slot for producing the via may have a configuration other than a cylindrical shape. (English translation of Hayama, paragraphs 44 and 45.) The only shape disclosed by Hayama other than a cylindrical shape, however, is a circular truncated cone shape for forming an electrode 35 such as shown in Figure 11B of Hayama. Thus, Hayama does not disclose, teach, or suggest a via with a step having only two different widths.

Independent claim 14 also includes the requirement that the convex via have a step and thereby have only two different widths. Thus, independent claims 13 and 14 both include the feature of the convex via having a step and thereby having only two different widths. On the basis of this feature, Applicants submit that claims 13 and 14 are patentable over Hayama and request that the rejection of these claims be withdrawn.

As noted above, claims 15-21 are dependent on claim 13 and claims 22-28 are dependent on claim 14. For the reasons stated above, Applicants submit that these dependent claims are patentable over Hayama. It is Applicants' further contention that the deficiency heretofore discussed with respect to Hayama is not rectified by Saitou. That is to say, Saitou lacks any teaching or suggestion of a convex via having a step and thereby having only two different widths as defined in all pending claims. Further as stated by the Examiner, "Saitou is not relied upon to teach convex via having a step as defined in all of Applicants' pending claims."

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Hayama is relied upon to disclose this limitation." Thus, since Saitou does not teach or suggest a convex via having a step and thereby having only two different widths, Saitou does not anticipate or render obvious Applicants' claimed invention. Applicants therefore request that the rejections of claims 15-28 be withdrawn.

Based on the foregoing remarks and amendments, Applicants respectfully submit that claims 13-28 are in condition for allowance. Reconsideration and allowance of all pending claims are respectfully requested.

Respectfully submitted,

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